

placed in the dark fascia. *Legs* pale yellow, with numerous black spines; the tarsi beneath very thickly spinous; spurs and claws piceous. *Abdomen* yellowish, with brown rings; terminal segment provided with numerous short black spines.

The single example of this curious species was taken at Baghdad during Sir Henry Loftus's expedition to Persia.

### Genus CREAGRIS, *Hagen*.

CREAGRIS NIGRO-STRIGATUS, n. sp. *Nigricans*, *brunneo varius*. *Antennæ* nigrae, tenuiter flavo annulatae; *clava* obtusa, subtus excavata. *Prothorax* longior quam lator, antice angustior, marginibus laterali-  
bus rectis. *Alæ* elongatae, subfalcatae, fere æquales, hyalinae: *antica* vittis nigris, quarum una subcostali, altera obliqua submedia, longis, cæteris inter has brevioribus; *marginè* dorsali ante medium litera V nigro signato; *punctis* nigris numerosis; *pterostigmate* nigro, externe albedo; *venis* albidis nigrisque: *posticæ* anticis angustiores, ad apicem acutiores; *punctis* paucis apicalibus nigris; *pterostigmate* albedo. *Pedes* nigri, brunneo varii, nigro spinosi, cano hirsuti. *Abdomen* supra nigrum, infra griseo-ochraceum, sparse cano pilosum. *Long.* corp. 1" 2"; *exp. alar.* 2" 7".

*Hab.* Natalia. In collect. auctoris.

Blackish; thorax varied with brown. *Antennæ* about the length of the thorax, stout; the club gradually formed and very obtuse, the underside of it concave: black, finely and closely annulated with yellowish ochreous; these annulations are broader on the club; the basal joint beneath wholly ochreous. *Head* dull blackish, the mouth yellowish ochreous; *labial palpi* with the last two joints nearly equal in length, the last in the form of an elongate shining black club. *Prothorax* rather longer than broad, the lateral margins nearly parallel for more than half their length, the anterior portion suddenly contracted, so that the prothorax here is much narrower than the other part, the anterior angles rounded; the anterior margin nearly straight, slightly excavated; an evident transverse impressed line proceeds across the prothorax at the commencement of the contraction, and the anterior part beyond this line is slightly elevated, forming a sort of collar; the colour is blackish varied with reddish brown. *Mesothorax* much broader than the prothorax, the anterior lobe placed in a deep emargination of the lateral lobes and with a deep longitudinal median impressed line, the hinder margin straight, coloured as in the prothorax. *Metathorax* narrower than the mesothorax. *Wings* elongate, broadest beyond the middle, the apex acute, the apical margin excised, hence giving the apex a subfalcate form: *anterior wings* with broad black vittæ, of which one commences at the base and extends to the pterostigma, occupying the whole subcostal space and margining the radius on its lower edge, another commences also at the base, following the course of the fifth

principal longitudinal vein along its superior branch as far as the apical series of gradate veinlets, which it follows almost up to the apex; between these are about four shorter streaks proceeding from the apical series of gradate veinlets along the longitudinal veins towards the middle, the lower much longer than the others; a V-shaped black mark at the termination of the postcostal vein; pterostigma internally black, joining the subcostal streak, externally whitish with a slight reddish tinge; all the apical and dorsal veinlets trifurcate or quadrifurcate, those on the apical margin marked with black at the apex of the furcations; the veins and veinlets partly black and partly whitish: *posterior wings* one-fourth narrower than the anterior, the apex more produced; without markings, excepting a blackish spot on the pterostigma internally, and one or two small blackish dots below it towards the dorsal margin; veins and veinlets mostly whitish, the radius strongly streaked with blackish. *Legs* blackish, varied with brownish, with strong black spines intermixed with scattered hoary hairs; spurs slightly longer than the first tarsal joint, regularly curved, shining brown. *Abdomen* one-fourth shorter than the wings, slender, dull blackish above, greyish ochreous beneath, sparingly clothed with short hoary pubescence.

I possess one example of this strongly marked species from Port Natal; it is allied to, and of the same form as, *C. mortifer*, Walker.

#### GENUS GLENURUS, Hagen\*.

GLENURUS PUSTULATUS, n. sp. Nigricans, flavo varius. (Antennæ mutilatæ). Caput flayum; vertice nigricante, inter oculos late transverse sulcato. Prothorax duplo longior quam lator, angustus, antice productus, flavus, fusco varius; hoc et metathorace infra flavis, utrinque nigris. Mesothorax medio nigricans. Alæ hyalinæ, cæruleo iridescentes, macula magna apicali pustulata æneo-nigra; pterostigmate albo: anticæ ad apicem latæ, rotundatæ; punctis numerosis in area subcostali nigris; plagis tribus nigro reticulatis, quarum una dorsali, duabusque apicalibus; venulis transversalibus inter venas 4<sup>m</sup> et 5<sup>m</sup> late nigro marginatis: posticæ anticis paulo longiores, dimidio angustiores; subcosta alba, nigro punctata. Pedes flavi, nigricante punctati. Abdomen supra nigrum, flavo signatum; infra flavum. Long. corp.?; exp. alar. antic. 2" 8''' ; postic. 2" 11'''.

*Hab.* Ceylon. In collect. auctoris.

*Antennæ* (broken) with the basal joint yellowish. *Head* small; the

\* In this genus Hagen includes a mass of what appear to me very heterogeneous materials. Among them is the European *pantherinus*, for which Brauer proposed the generic term *Dendroleon*. I believe the publication of both names was so nearly simultaneous that it is difficult to decide which has priority; but as the group will without doubt be eventually split up, both terms may then be retained, that of *Dendroleon* being limited to *pantherinus* and its immediate allies.

posterior portion yellow, forming a triangular space; vertex tuberculated, blackish; a broad deep transverse channel between the eyes in front; the lower portion of the head pale yellowish; mandibles yellowish, blackish internally; palpi very small, yellowish. *Eyes* very large, subglobose, blackish. *Prothorax* very narrow, twice as long as broad, the anterior portion widened and produced; yellowish above, clouded with fuscous, with fuscous hairs. *Mesothorax* much broader than the prothorax, yellowish above, with three large black spots in the middle, a fine wavy blackish line on the attachments of the wings, with a small black point. *Metathorax* blackish, yellowish at the sides. Beneath, the whole of the pro-, meso-, and metathorax is yellow, with a black longitudinal line on each side. *Wings* hyaline, with beautiful blue iridescence, pterostigma white; on each of the wings, near the apex, beyond the pterostigma, is a large rounded inflated blackish spot with brassy reflection: *anterior wings* much dilated and rounded at the apex, the extreme apex forms a small little-evident point, beneath which the margin is slightly excised; the subcostal space is occupied by numerous small black spots (interspersed with larger ones) following the transverse nervules; between the fourth and fifth principal longitudinal veins the transverse oblique nervules are broadly margined with black; a large irregular blackish spot beyond the end of the postcosta on the dorsal margin (at the base of the oblique branch of the fifth vein); two blackish reticulated clouds at the apex; the edge of the wings, and the veins and veinlets, have short yellowish hairs; subcosta whitish, interrupted with the black spots of the subcostal space; costal veinlets whitish, very numerous, simple at the base, but mostly forked beyond the middle; apical and dorsal marginal veins mostly bisbifurcate; the longitudinal veins (excepting the subcosta), and many of the transverse nervules, mostly blackish: *posterior wings* slightly longer than the anterior, one-half narrower, apical formation similar but more pointed; subcosta whitish, with short blackish lines; most of the longitudinal veins blackish, and of the transverse nervules whitish; costal nervules all simple, except about and beyond the pterostigma; these wings are without markings, save the whitish pterostigma, and blackish inflated apical spot common to all the wings. *Legs* yellowish, with numerous blackish points forming the bases of blackish bristle-like hairs; first and last tarsal joints very long, the others small; tibial spurs slender, nearly straight, with incurved tips, shining testaceous, nearly as long as the three first joints; claws long. *Abdomen* slender, blackish above; first, second, and third segments posteriorly finely margined with yellow; fourth segment with a cuneiform yellow spot commencing in the middle, its apex reaching the posterior margin; fifth segment yellowish in the middle; the whole underside, excepting the apex, yellow.

I have one example (♂ ?) from Ceylon.

*GLENURUS* (?) *JAPONICUS*, n. sp. Pallide brunneus. Antennæ elongatæ, fuscæ, clava nigra. Caput supra flavo-fuscum, infra flavum; fronte inter oculos nigro signata. Prothorax elongatus; marginibus lateraliibus nigro hirsutis, fere parallelis; supra flavo-brunneus. Mesothorax metathoraxque supra brunnei, flavo varii; infra flavi, utrinque late nigri. Alæ hyalinæ, argenteo iridescentes, elongatæ, ante apicem dilatatæ, ad apicem acutæ, pterostigmate albedo: anticæ macula obliqua incurvata dorsali punctoque ad apices venarum 4<sup>æ</sup> et 5<sup>æ</sup> nigricantibus; vena subcostali, radio, 4° 5°-que nigris, flavo-albido punctatis; venulis transversalibus plerumque albedo-hyalinis: posticæ anticis longitudine æquales, angustiores, acutiores; plaga magna subapicali marginem dorsalem versus nigra; venis venulisque plerumque albedo-hyalinis. Pedes flavescens, punctis spinisque nigris; tarsi nigro terminati. Abdomen gracile, brunneum, basi flavo-albido signatum. Long. corp. 1" 3''' ; exp. alar. 3'''.

*Hab.* Japonia. In collect. auctoris.

*Antennæ* long, placed close together at the base, brown, slightly pubescent; club long and slender, black, concave beneath. *Head* above very obtusely triangular, yellowish brown, with darker clouds; beneath pale yellow; vertex shining black between the eyes; palpi very small, yellow; mandibles yellow, tipped with black. *Eyes* very large, subglobose, dull blackish. *Prothorax* about twice as long as broad, the sides nearly parallel but notched in the anterior portion, very pale yellowish brown, with black hairs; posteriorly on each side with a pale impressed cornucopia-shaped marking, blackish brown between these markings and with a blackish-brown line on each side. *Meso-* and *metathorax* above blackish brown, varied with yellowish. The whole of the three thoracic segments beneath is yellow, with a broad black line on each side. *Wings* elongate, hyaline, with silvery reflections; the two pairs equal in length: *anterior wings* dilated before the apex, which latter is acute with a very slight emargination below it; pterostigma whitish, with a blackish cloud internally; a large, oblique, curved blackish mark rather before the middle of the dorsal margin, and a small blackish spot at the end of the fourth and fifth principal longitudinal veins near the apex; subcosta black, with numerous yellowish spots; radius (3rd vein) and fifth longitudinal vein also black, with more distant yellowish interruptions; transverse costal nervules very numerous, for the most part simple, but furcate towards the apex, the whole of these, and many of the other transverse nervules, and some of the smaller longitudinal veins, whitish hyaline, the rest blackish; apical and subapical veins furcate or bisfurcate; the margins and most of the veins and veinlets finely pubescent: *posterior wings* one-fourth narrower than the anterior, more acute at the apex; pterostigma whitish, internally and externally obscure; a large curved reticulated blackish blotch near the apex



towards the dorsal margin; apical margin broadly greyish (a trace of a similar margination is also seen in the anterior wings); some of the longitudinal veins obscure; most of the transverse nervulæ whitish hyaline; finely pubescent as in the anterior wings. *Legs* yellow, the tibiæ and tarsi with black dots and spines; tarsi tipped with black; first and last tarsal joints longer than the others; tibial spurs as long as the first tarsal joint; claws very long, directed downwards, nearly straight, with incurved tips, shining brown.

I possess two examples from Japan. It is placed provisionally in *Glenurus*; but it possesses many characters in common with *Creagris*, from which it differs in the great length of the antennæ, and gradually dilated wings.

## CHRYSOPIDÆ.

### Genus CHRYSOPA, *Leach*.

#### A. *Labro antice truncato aut rotundato*.

**CHRYSOPA COGNATA**, n. sp. Viridi-flava. Antennæ alis paulo breviores, brunneæ, basi flavæ. Caput viridi-flavum, facie punctis quatuor nigris, quarum duobus sub antennarum articulis basalibus, duobus elongatis lateralibus; palpi fulvi; labro antice truncato. Prothorax, mesothorax metathoraxque viridi-flavi, immaculati; ille fere quadratus, angulis anticis obliquis. Alæ elongatæ, subacutæ, pterostigmate viridi-brunneo, elongato; anticæ venulis costalibus, postcostalibus, nonnullis cubitalibus, gradatisque plerumque nigris, reliquis viridis. Pedes viridi-flavi; tarsi fulvi. Abdomen viridi-flavum. Long. corp. 5-7''; exp. alar. 1'' 6'''-1'' 10'''.

*Hab.* Cambodia, China, Japonia. In collect. auctoris.

Greenish yellow. *Antennæ* scarcely so long as the wings, pale brown, the base yellow. *Head* greenish yellow, vertex inflated but with a deep broad transverse depression in the centre; face with four black spots, of which one is placed below the base of each antenna, and one, more elongate, on each side below the upper ones; palpi fulvous. The whole of the *thorax* and *abdomen* greenish-yellow; *prothorax* nearly quadrate, the anterior angles oblique, a deep transverse channel in the posterior third. *Wings* elongate, somewhat acute; pterostigma long, greenish-brown, with numerous short transverse veinlets: *anterior wings* with all the costal veinlets (excepting the pterostigmatical), the postcostal, several of the cubital, the two first of those between the radius and its sector (partly), and most of the gradate series black; the rest of the veins and veinlets pale green; about 30 costal veinlets before the pterostigma; about 18 veinlets between the radius and its sector; the veinlet at the base of the subcostal area placed rather before the fourth costal one: *posterior wings*

narrower than the anterior, slightly shorter; the costal veinlets before the pterostigma, the veinlets between the radius and its sector (mostly only in the upper half of each veinlet), and most of the gradate veinlets black, the others pale green. All the veins and veinlets in both pairs of wings have fine short black hairs. *Legs* pale greenish yellow; *tarsi* fulvous; *claws* dilated at the base.

I possess numerous examples, which do not vary, from the several localities above mentioned. It is closely allied to *C. septempunctata* and *C. bipunctata*, but differs in always wanting the spot between the antennæ, &c.

CHRYSOPA TRIPUNCTATA, n. sp. Flavo-ferruginea. Antennæ alis paulo longiores, ferruginæ; articulo basali flavo, extus linea nigra. Caput flavum; maculis quinque nigris, quarum duabus elongatis in vertice, una inter antennas, duabus subrotundatis in fronte sitis. Labrum et palpi ferruginea. Prothorax fere duplo latior quam longior, ferrugineus. Mesothorax metathoraxque flavo-ferrugini. Alæ hyalinæ, cellulis nonnullis mediis albidis; pterostigmate flavo-ferrugineo, elongato: anticæ elongatæ, ad apicem rotundatæ; venulis costalibus gradatis, et inter radium et sectorem (illisque in parte basali), nigris; venis longitudinalibus venulisque cæteris albido-flavis; cellula cubitali subquadrata: posticæ venulis costalibus, et inter radium et sectorem, nigris, cæteris fere omnino albido-flavis. Pedes flavi, tarsi ferrugini; unguiculis basi dilatatis. Abdomen ochraceum (♀). Long. corp. 4''' ; exp. alar. 11'''.

*Hab.* Australia. In collect. auctoris.

*Antennæ* about the length of, or slightly longer than, the wings, ferruginous, the basal joint yellow with a black line externally. *Head* yellow, the vertex convex, two parallel elongated spots in the middle of the vertex, a similar one, but smaller, between the antennæ, and a somewhat rounded one on each side of the front in the genæ, black; *labrum* and *palpi* ferruginous. *Prothorax* very short, twice as broad as long, ferruginous (much depressed in the dead insect). *Meso-* and *metathorax* yellowish ferruginous, the sutures darker. *Wings* elongate, rounded at the apex; hyaline, some of the cellules having a sort of whitish oxydization in the middle; pterostigma long, yellowish-ferruginous: *anterior wings* with all the costal veinlets, the gradate veinlets, those between the radius and its sector, and all those in the basal half of the wing black, the longitudinal veins and the rest of the veinlets and apical furcations pale yellowish; the veins, veinlets and margins slightly hairy; cubital cell subquadrate; 15 costal veinlets, 10 between the radius and its sector, 5 in the inner gradate series, 4 in the outer, about 6 of the veinlets on the dorsal portion of the apical margin simply furcate, the rest of the marginal veinlets simple: *posterior wings* with the costal veinlets and those between the radius and its sector black, the rest almost all yellowish. *Legs* yellow, the *tarsi*

ferruginous, the claws long, dilated at the base. *Abdomen* ochreous, slightly hairy.

**CHRYSOPA NIGRICEPS**, n. sp. Albida. Antennæ alis multo longiores, albæ, articulis duobus basalibus nigris. Caput, et thorax supra, nigricanta, infra albida. Alæ anticæ latæ, obtusæ, macula magna basali punctoque ad sectoris initium, nigris, plaga magna ante apicem, punctis striaque marginem dorsalem versus fuliginosis; venis venulisque albis, in signatis nigris, pubescentibus: posticæ dimidio angustiores; macula magna costali ante apicem, punctoque marginis dorsalis medium versus, fuliginosis; venis venulisque ut in anticis. Pedes albi. Abdomen albidum, linea dorsali nigra. Long. corp. 5''; exp. alar. 1'' 4'''.

*Hab.* Ega, Brasilia (*Bates*). In collect. auctoris.

*Antennæ* much longer than the wings, whitish, the two basal joints black.

*Head* and *thorax* deep blackish fuscous above, whitish beneath; *eyes* black; *labrum* whitish; *palpi* whitish, annulated with fuscous; *prothorax* much broader than long, the anterior angles oblique. *Wings* hyaline: *anterior wings* rather broad, obtuse; a dark blackish blotch occupies the extreme base, a small black dot at the point where the sector parts from the radius; a large irregular smoky fuscous blotch on the costa before the apex, and some dots and an irregular streak along the external series of gradate veinlets; veins and veinlets everywhere white, excepting where they traverse the dark markings, when they are black; marginal cilia rather long; the veins and veinlets with long but distant hairs: *posterior wings* nearly one half narrower than the anterior, more acute, veins and veinlets similar; a smoky fuscous spot on the costa before the apex, and a dot towards the dorsal margin about the middle. *Legs* white, the posterior tarsi slightly testaceous; claws long, slightly dilated at the base, testaceous. *Abdomen* whitish, rather thickly clothed with short silky pubescence; a blackish dorsal line, becoming broader towards the apex.

**CHRYSOPA PALLICEPS**, n. sp. Pallide viridi-flava. Antennæ alis fere duplo longiores, griseo-albidæ, articulis duobus basalibus piceo-nigris. Caput pallide viridi-flavum; fronte nitente nigra; palpis albidis, nigro annulatis. Prothorax fere quadratus, supra pallide viridi-flavus, infra albus. Mesothorax metathoraxque supra piceo-nigri, infra albi. Alæ hyalinæ: anticæ obtusæ; plaga ante costæ apicem magna, fenestrata, fusca; venis venulisque albidis, nonnullis ad basin, gradatis, illisque in plaga fuscis: posticæ fere dimidio angustiores, acutæ, plaga magna ante costæ apicem fusca; venis venulisque albidis, in plaga fuscis. Pedes albi. Abdomen pallide viridi-flavum, linea dorsali apicali nigra. Long. corp. 3''; exp. alar. 1''.

*Hab.* Ega, Brasilia (*Bates*). In collect. auctoris.

*Antennæ* very slender, almost twice the length of the wings, pale greyish white; the two basal joints pitchy black. *Head* with the vertex pale greenish-yellow; face shining black; *eyes* black; *palpi* whitish, an-

nulated with black. *Prothorax* nearly quadrate, above pale greenish yellow, beneath whitish. *Meso-* and *metathorax* above pitchy black, beneath whitish. *Wings* hyaline, the margins and neuration strongly ciliated: *anterior wings* with a large fuscous blotch on the costa before the apex, enclosing three or four pale cellules below the radius; a fuscous clouding at the extreme base; veins and veinlets whitish, the two first costal veinlets, those in the clouding at the extreme base of the wing, two or three about the commencement of the sector, the gradate series, and those in the fuscous blotch dark blackish fuscous: *posterior wings* about one-half narrower than the anterior, acute; a large fuscous spot on the costa before the apex; veins and veinlets whitish, some of the costal, the gradate series, and those in the costal spot, blackish. *Legs* white, ciliated; the tips of the tarsi obscure.

This species is closely allied to *C. nigriceps*; both are extremely beautiful and delicate insects, and allied to *C. elegans*, Guérin, belonging to a group apparently peculiarly Brazilian.

#### B. *Labro antice emarginato.*

**CHRYSOPA GIGANTEA**, n. sp. Olivaceo-grisea. Antennæ alis breviores, nigræ, articulis duobus basalibus griseis. Palpi labrumque rufo-brunnei. Prothorax brevis, vix longior quam lator; utrinque lineis duabus parvis nigris. Alæ hyalinæ, vix albido tinctæ; spatio pterostigmatico olivaceo-griseo, elongato; venis longitudinalibus albidis nigro interruptis; venulis transversalibus costalibus, gradatis, post-costalibus nonnullisque incersatis ad basin omnino nigris, reliquis plerumque nigro terminatis; venis venulisque breviter nigro hirsutis. Pedes pallide grisei; tibiis basi nitente nigro annulatis; unguiculis rufo-testaceis, basi dilatatis. (♀). Long. corp. 1"; exp. alar. 2" 3".

*Hab.* Natalia. In collect. auctoris.

*Antennæ* shorter than the wings, thick, deep black, with the two basal joints pale grey. *Head* small, pale olivaceous grey; the eyes (in death) concolorous; labrum and palpi shining reddish brown. *Prothorax* scarcely as long as broad, slightly notched on each side in front and with the anterior angles acute; pale olivaceous grey, the anterior angles slightly reddish, two short black lines on each side. *Meso-* and *metathorax* olivaceous grey varied with yellow in the middle. *Wings* elongate, whitish hyaline; pterostigmatic space elongate, olivaceous, the longitudinal veins whitish, with strong black interruptions; the whole of the costal veinlets (excepting those towards the apex), the veinlets in the subcostal space, the gradate series, and four or five very strong ones at and below the cubital cells totally black, those between the radius and its sector, and those between the cubitus anticus and posticus, black at each end, the marginal forks blackish at their bases, the rest of the veinlets whitish; all the veins and veinlets with short black hairs, each hair springing from a black point; the costa grey,



with a blackish line at the junction with the thorax: *anterior wings* with about 24 costal veinlets; the transverse veinlet at the base of the subcostal space placed level with the fifth costal one, about 7 veinlets at the apical end of this space; 4 cellules in the postcostal area. *Legs* pale grey; all the tibiæ with a shining black ring at their junction with the femora; claws shining reddish brown, dilated at their bases. *Abdomen* very robust, dilated and laterally compressed; yellowish grey, the ventral sutures yellow, the sides grey.

Of this magnificent insect I possess one female from Natal.

*CHRYSOPA RUFOSTIGMA*, n. sp. Pallide flava, fusco varia. Antennæ alis paulo breviores, nigræ, articulo basali aurantiaco. Caput aurantiacum, vertice macula semicirculari fuscescente; palpi aurantiaci; labrum vix emarginatum. Prothorax dimidio et ultra latior quam longior, antice rotundatus, pallide flavus, utrinque piceo-brunneo signatus, medio profunde longitudinaliter sulcatus. Mesothorax pallide flavus, antice et utrinque postice nitens niger, punctis nonnullis mediis nigris. Metathorax pallide flavus, postice et utrinque niger. Alæ angustæ, elongatæ, acutæ, albido-hyalinæ; pterostigmate elongato, rufo: anticæ costa vix excisa; punctis tribus basalibus, venulis costalibus basin versus in parte basali nonnullisque pone medium nigris, venarum venularumque cæteris pallide flavo-albidis: posticæ venulis nonnullis pone medium nigris, cæteris ut in anticis. Pedes flavi; femoribus intermediis et posterioribus annulo ante apicem lineaque intus fuscis; unguiculis basi paulo dilatatis. Abdomen piceo-brunneum, supra flavo varium. (♀) Long. corp. 6''' ; exp. alar. 1" 1'''.

*Hab.* Natalia. In collect. auctoris.

*Antennæ* rather shorter than the wings, black, the basal joint orange.

*Head* orange; the vertex yellowish behind, in the middle with a horseshoe-shaped fuscescent mark; front slightly obscure in the middle anteriorly; labrum and palpi orange-coloured, the former very slightly emarginate. *Prothorax* more than half as broad as long, rounded in front, with a deep longitudinal groove in the middle; pale yellow, with a curved fuscous streak on each side, and a spot of the same colour at the anterior angles. *Mesothorax* pale yellow, a large elongate transverse spot on the anterior margin, a large rounded spot on each side posteriorly, and several smaller spots in the middle shining black. *Metathorax* pale yellow, posteriorly and on each side black. The underside of the meso- and metathorax with dark brown markings. *Wings* long and narrow, acute, whitish hyaline; pterostigma  $2\frac{1}{2}$ ''' long, reddish: *anterior wings* with the costal margin very slightly excised in the middle; three small black spots at the base towards the dorsal margin; the first six costal veinlets at their bases, the postcostal veinlets and a few above them, the sector for a space in its middle, and the base of the veinlets to the radius, starting from this space, the last seven gradate veinlets of the inner series, and the

veinlets between these and the outer series black, all the other veins and veinlets pale whitish yellow, all clothed with very short hairs; about 25 costal veinlets, 17 between the radius and its sector, about 12 in the outer gradate series, 11 in the inner; these two series are scarcely parallel, being more approximate towards the base; the transverse veinlet at the base of the subcostal space placed about level with the fourth costal veinlet: *posterior wings* with a space in the middle of the sector, the base of the veins running from that space to the radius, and the inner gradate series black, the others pale whitish yellow. *Legs* yellow, a ring before the apex of the intermediate and posterior femora, and a line on the inner side of these brown; tarsi darker, claws slightly dilated at the base. *Abdomen* pitchy brown, the margins of the segments above and at the sides yellowish; the penultimate ventral segment very long, forming a shining reddish-brown plate; the antepenultimate ventral segment also long, with an elongated depression on its lower edge.

Allied to *C. æqualis*, Walker.

CHRYSOPA CLARA, n. sp. Griseo-ochracea. Antennæ alis valde longiores, flavo-albidæ, articulo basali supra sanguineo tincto. Caput vertice antice linea angulata nigra; clypei vitta transversa sanguinea; Prothorax elongatus, antice angustatus, linea media impressus; puncto utrinque fusco. Alæ latæ, albido-hyalinæ; pterostigmate flavo, intus fusco notato: anticæ venis venulisque flavo-albidis, longe hirsutis; radio ad basin puncto nigro; venulis costalibus ad initium, nonnullis ad basin inter radium et sectorem, furcula postcostali serieque gradata externa nigris; cellula ad furcam postcostæ fuliginosa: posticæ angustiores, venis venulisque omnino flavo-albidis. Abdomen flavum; dimidio apicali nigro punctato. Pedes flavo-albidi. Long. corp.  $6\frac{1}{2}$ ''' : anten.  $1'' 7'''$ ; exp. alar.  $1'' 10'''$ .

*Hab.* Ega, Brasilia (Bates). In collect. auctoris.

*Antennæ* nearly twice the length of the wings, yellowish white, the basal joint marked with pinkish above. *Head* greyish ochreous; *vertex* flattened, a fine angular black line in the anterior portion behind the basal joints of the antennæ; *front* with a pinkish spot immediately below the basal joints of the antennæ, clypeus with a broad transverse pinkish band; *palpi* yellowish; *eyes* lead-coloured. *Prothorax* with the length twice the breadth, much narrowed in front, above with a deep median impressed longitudinal line; greyish ochreous, paler beneath, a fuscous spot on each side placed more on the under surface than on the upper. *Meso- and metathorax* greyish ochreous, the lobes prominent. *Wings* broad, the apical margin rounded, but the extreme apex slightly acute; whitish hyaline; pterostigma yellow, with a fuscous mark internally: *anterior wings* with the veins and veinlets very pale yellowish white and, with the margins, longly pubescent; a black spot at the extreme base of the radius at its junction with the

mesothorax; middle costal veinlets black at their commencement on the margin, the first wholly black; the commencement of the sector, and the four first veinlets between it and the radius, almost wholly black; several veinlets below the commencement of the radius and the whole of the outer gradate series, and several in continuation between the branches of the cubitus, wholly black; postcostal furcation and the veinlet beyond it black, *the cellule between fuliginous*; gradate series scarcely parallel; marginal veinlets simply forked; pterostigmatical veinlets numerous: *posterior wings* with all the veins and veinlets pale. *Legs* pale yellowish white, pubescent. *Abdomen* yellow, the apical half with black spots.

This beautiful insect is very closely allied to *C. varia*, Schneider, but differs especially in a somewhat different arrangement of the black veinlets, and in the fuliginous cellule at the end of the postcosta; it is also larger.

## MANTISPIDÆ.

### Genus TRICHOSCELIA, *Westwood*.

TRICHOSCELIA LATIFASCIA, n. sp. Flavo-ochracea. Antennæ, caput, prothoracis dimidium antice et abdominis apex nigra; prothoracis dimidium postice, mesothorax, metathorax et abdominis dimidium basale flavo-ochracea. Alæ nitentes albo-hyalinæ; anticæ maculis duabus oppositis ante medium nigro-fuscis; fascia lata subapicali fusca; venis venulisque flavis, nonnullis ad basin nigris: posticæ parvæ; margine costali ad basin pterostigmateque nigro-fuscis; macula ad basin marginis dorsalis fusca. Pedes flavo-ochracei; antici trochanteribus, femoribusque infra, nigro signatis; postici femoribus nigris. Long. corp.  $4\frac{1}{2}'''$ ; exp. alar. antic.  $10\frac{1}{2}'''$ ; post.  $7'''$ .

*Hab.* Ega, Brasilia (*Bates*). In collect. auctoris.

*Antennæ* and *head* black; the joints of the former are transverse and triangular, hairy, almost spinous. *Eyes* grey. *Prothorax* with the length more than twice the breadth; anterior half black, posterior half yellowish ochreous. *Meso-* and *metathorax* broader than the head with the eyes, yellowish-ochreous. *Abdomen* with the basal half yellowish ochreous, the apical half black; apex obtuse, with two minute, curved, and distant testaceous spine-like appendices. *Wings* whitish hyaline, very shining: *anterior wings* with two large blackish fuscous opposite spots before the middle, one on the costal margin, the other on the dorsal margin; a very broad transverse fuscous fascia before the apex, leaving only a small hyaline apical space; veins and veinlets yellow, those in the dark markings, and the base of the subcosta, radius, and cubitus black; about 13 costal veinlets before the pterostigma, pterostigmatical veinlets very numerous, about 9 gradate veinlets, and one or two further in towards the dorsal margin, veinlets

on the dorsal margin simply furcate, those on the apical margin for the most part twice forked; all the veins and veinlets finely hairy: *posterior wings* one-third shorter than the anterior, and much narrower; pterostigma blackish fuscous; a fuscous spot on the dorsal margin towards the base; veins and veinlets black, excepting the middle portion of the costa and subcosta, which are yellow; 6 gradate veinlets. *Legs* yellow, the dilated portion of the anterior femora largely marked with black beneath, the teeth black, the trochanters black; intermediate pair with the base of the femora black; posterior pair with the base of the femora and the tarsi (wholly, except the extreme base) black.

### PANORPIDÆ.

#### Genus PANORPA, *Linné*.

The following is a synopsis of the species known to occur in Japan:—

1. PANORPA JAPONICA, *Thunberg, Nov. Ins. Sp. Dissert.* iii. pl. 67. f. 9. Nigra. Alæ albido-hyalinæ; fasciis duabus perlatis, quarum una pone medium (ad costam intus aliquando furcata), altera apicalis, nigris. Pedes rufescentes. Abdomen cylindricum; ♂ segmentis 1<sup>o</sup>–4<sup>m</sup> transversis; 5<sup>o</sup> elongato; 6<sup>o</sup> quinto fere æquali, vix tenuiore, margine posteriore truncato, lateribus paulo productis; 7<sup>o</sup> quam 6<sup>m</sup> longiore, tenuiore, gradatim incrassato, margine posteriore oblique truncato; 8<sup>o</sup> brevi, transverso, obconico, forcipe perelongata, rufo-fusca, ad basin intus fimbriata; appendicibus brevibus, parvis. ♂. Long. corp. 12<sup>'''</sup>; exp. alar. 1<sup>''</sup> 7<sup>'''</sup>.

♂. *Body* totally deep shining black. *Wings* whitish hyaline, a little obscure towards the base; with two very broad black fasciæ, one beyond the middle, the other occupying the apex, the first fascia is sometimes slightly furcate internally on the costa, or there is at this place a small detached spot; pterostigma scarcely coloured; all the veins and veinlets black; the subcosta joins the costa slightly beyond the middle, far before the pterostigma. *Legs* reddish, the tarsi more obscure; claws with 4 or 5 long teeth below the apex. *Abdomen* long, cylindrical, the first four segments transverse; 5th long; 6th about as long as the 5th, and slightly narrower, the apical margin truncated, with the sides slightly produced; 7th longer than the 6th, thin, but gradually incrassated, the apical margin obliquely truncated; 8th transverse, broad, obconical, the forceps very long, fringed internally at the base, reddish brown; appendices very short and small.

I have not a perfect specimen of the ♀.

There can be no doubt that this is the insect intended by Thunberg.

2. PANORPA KLUGII, *mih.* Piceo-brunnea; rostro pedibusque plus minus rufo-testaceis. Alæ testaceo-hyalinæ; fasciis duabus, quarum



una angusta pone medium, altera lata apicalis, maculisque ante fasciam primam nigro-fuscis. Abdomen gracile; ♂ segmentorum 1<sup>i</sup>-4<sup>i</sup> marginibus lateralibus vix alatis; 2° supra in medio paulo producto; 6° cylindrico, elongato, truncato; 7° quam 6<sup>m</sup> longiore, graciliore, oblique truncato; 8° elongato-conico, forcipe elongata, intus ad basin fimbriata; appendicibus linearibus, parvis. ♀ prothorace pectoreque rufis. Long. corp. ♂ 9<sup>m</sup>, ♀ 6<sup>m</sup>; exp. alar. ♂ 1" 3<sup>m</sup>, ♀ 1" 1<sup>m</sup>.

♂. The whole of the body excepting the rostrum, pitchy-brown; rostrum reddish. Legs reddish fuscous; claws with three teeth internally below the apex. Wings hyaline, with a decided testaceous tinge; with two blackish fuscous fasciæ,—one narrow, beyond the middle; the other broad, occupying the apex; before the first fascia are one or two detached fuscous spots (sometimes absent); veins blackish fuscous at the base, somewhat testaceous between the fasciæ; the subcosta joins the costa in the middle. Abdomen slender, moderately long; the first four segments transverse, the lateral margins slightly winged; 2nd segment with its posterior margin slightly produced in the middle above; 5th subcylindrical, long, truncated; 6th about the length of the 5th, and thinner, truncated, the lateral margins slightly angular; 7th longer than the 6th, gradually incrassated, obliquely truncated; 8th forming an elongated cone, the forceps very long, and fringed internally at the base; the appendices are linear and small. ♀ differs only in having the prothorax and the whole of the breast reddish; the legs redder. Abdomen compressed, short.

This may be *P. japonica*, of Klug, 'Abhandl. Akad. Berlin,' 1836; but his description would seem to indicate a species in which the first fascia is broad, and more closely allied to the true *japonica* of Thunberg.

3. PANORPA MACROGASTER, n. sp. ♂. Nigra. Alæ albido-hyalinæ, fasciis duabus latis, quarum una pone medium, altera apicalis, nigro-fuscis, albido longitudinaliter striatis; punctis nonnullis ante fasciam primam et inter fascias, nigro fuscis; venis piceo-nigris, inter fascias testaceis. Pedes rufi. Abdomen valde elongatum, robustum, segmentorum 1<sup>i</sup>-4<sup>i</sup> marginibus lateralibus paulo alatis; segmento 2° supra postice in medio producto; 6° cylindrico, quam 5<sup>m</sup> paulo angustiore, postice truncato, utrinque in dentem producto; 7° quam 6<sup>m</sup> valde angustiore, longiore, gradatim incrassato; 8° brevi, obconico, forcipe rufa, perelongata. Long. corp. 14<sup>m</sup>; exp. alar. 1" 8<sup>m</sup>.

♀. Minor. Abdomen gracile, dimidio basali alato; segmentis gradatim angustioribus. Long. corp. 6<sup>1</sup>/<sub>2</sub><sup>m</sup>; exp. alar. 14<sup>m</sup>.

♂. Antennæ, head, rostrum, palpi, and the whole of the body black; the membranous portion between the abdominal segments reddish. Wings whitish hyaline; with two broad blackish fuscous fasciæ, one beyond the middle, the other occupying the apex, these fasciæ are traversed

longitudinally by lines of the whitish ground-colour in the middle between the veins, the dark colouring consisting of a broad margining of the longitudinal veins, and in the apical fascia there are several similarly margined transverse vienlets, hence this fascia has a fenestrated appearance; before the first fascia are two or more fuscous spots, sometimes uniting and forming a more or less complete basal fascia; between the fasciæ there is generally a fuscous spot on the dorsal margin, which sometimes unites with the first fascia, and forms a little fork; pterostigma yellow; basal veins black, most of those between the fasciæ more or less testaceous; the subcosta joins the costa scarcely beyond the middle, far before the pterostigma. *Legs* rufous; claws with three obtuse teeth below the apex. *Abdomen* very long and robust; the first four segments more or less transverse, the lateral margins winged; second segment with its posterior margin above produced in the middle; 5th segment nearly cylindrical, longer than broad, scarcely narrower than the fourth; 6th cylindrical, about as long as the 5th, and narrower, truncated at the apex, the apical margin produced at each side into a tooth; 7th longer than the 6th and very much thinner, cylindrical, gradually thickened towards the apex, which is truncated, with the margins slightly concave above and beneath; 8th short, broadly obconical, the forceps very long, the points crossing each other, reddish brown.

♀. Much smaller than the ♂. In the specimen before me the basal spots on the anterior wings form a fascia. *Abdomen* slender, the apical segments very thin; basal segments laterally winged, as in the male; two last segments equal, together not so long as the antepenultimate.

It is remarkable that in the neuration of all the three above-described species, the subcosta joins the costa at, or scarcely beyond, the middle, a peculiarity which, in the European species, is seen only in *P. variabilis*.

4. PANORPA, sp. nov. "Mit ganz schwarzen weiss gefleckten Flügeln." Coll. Hagen. Vide *Stett. ent. Zeit.* 1867, p. 90.
5. PANORPA LEUCOPTERA, Uhler, *Proc. Acad. Scien. Philadelphia*, 1858. Alæ albæ, punctis nigris conspersæ.

I have seen a female of this; the male is yet unknown.

A revision of the "*List of the specimens of Neuropterous Insects in the collection of the British Museum. Part II.*, 1853. By F. WALKER," as far as the end of the genus *Myrmeleon*, pp. 193-410.

In making this revision I have examined all the examples indicated as being in the collection at the time of the publication of

the list, both those described as new, and those referred to previously named species; but I have paid no regard to examples acquired since the publication and placed under the various labels.

Family SIALIDÆ.

Genus SIALIS, p. 194.

SIALIS LUTARIUS, p. 194, 1; all the specimens=*S. lutaria*, L.

S. INFUMATUS, p. 195, 2; all=*S. infumata*, Newm.

S. FERRUGINEUS, p. 195, 3=*S. americana*, Rambur.

Genus ITHONE, p. 197.

ITHONE FUSCA, p. 196, 1=*I. fusca*, Newm. This genus belongs to the *Hemerobiidæ*.

Genus MEROPE, p. 196.

MEROPE TUBER, p. 196, 1=*M. tuber*, Newm. This genus belong to the *Panorpidæ*.

Genus CHAULIODES.

CHAULIODES PECTINICORNIS, p. 198, 1=*C. pectinicornis*, L.

C. RASTRICORNIS, p. 198, 2=*C. rastricornis*, Ramb.

C. SINENSIS, p. 199, 3=*C. sinensis*, Walker.

C. CALIFORNICUS, p. 199, 4=*C. californicus*, Walker.

C. SIMPLEX, p. 200, 5=*C. simplex*, Walker.

C. SUBFASCIATUS, p. 200, 7=*C. subfasciatus*, Walker.

C. FASCIATUS, p. 201, 8.

I have no doubt that these examples are American, and that the locality "New Holland" is erroneous. According to the foliated antennæ of the ♂ they should = *C. lunatus*, Hag. (Proc. Ent. Soc. Philadel. vol. ii. p. 180; *C. serricornis*, Hag., Neurop. of N. Amer. p. 190), and not the true *serricornis*.

Genus HERMES, p. 201.

This genus, which equals *Neuromus* of Rambur, is made up of species of *Chauliodes* and *Corydalis*.

HERMES MACULATUS, p. 202, 1; probably=*Chauliodes serricornis*, Say, but some of them may be *lunatus*.

H. RUFICOLLIS, p. 202, 2=*Chauliodes maculipennis*, Gray. I know

not for what reason Gray's name is deposed in favour of *ruficollis*, Rambur, to which it is long anterior.

H. MACULIFERA, p. 203, 3=*C. maculipennis*, Gray, ♀.

H. SINENSIS, p. 203, 4=*Chauliodes sinensis*, Walker. As this name is already employed in *Chauliodes*, I propose to change it to *Bowringi*.

H. GUTTIFERUS, p. 204, 5=*Chauliodes guttiferus*, Walker. No locality is given, but examples have been since received from Australia.

H. DUBITATUS, p. 204, 6=*Chauliodes californicus*, Walker, ♀.

H. INDECISUS, p. 204, 7=*Chauliodes rastricornis*, Rambur, ♀.

H. ANTICUS, p. 205, 8=*Chauliodes sinensis*, Walker, ♀.

H. DIVERSUS, p. 205, 9=*Chauliodes diversus*, Walker.

H. PRASINUS, p. 206, 10. I cannot imagine what fatality induced Mr. Walker to place this insect (described as *Chloroperla prasina* by Newman) among the *Sialidæ*, with which it has nothing in common. It is somewhat allied to *Eusthenia* of Westwood; and I recently proposed for it the generic term *Stenoperla*; vide 'Trans. Ent. Soc.' ser. 3. vol. v. p. 354.

H. TESTACEUS, p. 206, 11=*Corydalis testacea*, Rambur.

II. HIEROGLYPHICUS, p. 206, 12=*Corydalis hieroglyphica*, Rambur. This and *testaceus* are very closely allied, although coming from such opposite localities.

H. ALBIPENNIS, p. 206, 13=*Corydalis albipennis*, Walker.

II. COSTALIS, p. 207, 14=*Corydalis costalis*, Walker. This species is ill-placed in *Corydalis*, and does not agree well with *Chauliodes*, on account of the numerous transverse veinlets. It seems to vary much in the markings, probably according to the degree of maturity attained by the individuals. The, as yet, not rediscovered *Hemerobius grandis*, of Thunberg, from Japan, should be somewhat allied.

#### Genus CORYDALIS, p. 208.

C. CORNUTA, p. 208, 1. The example from Columbia=*C. armata*, Hagen (*cornuta*, Rambur); the two other specimens are the true *cornuta*.

#### Genus RAPHIDIA, p. 209.

I leave the exact determination of the species of this genus for a future occasion, when I shall have worked them out for my 'Monograph of the British *Planipennia*.' The species are very



closely allied, but can be separated with certainty by means of the anal parts of both sexes.

R. VARIA, p. 212, 13, belongs to the *Mantispidæ*, and=*Trichoscelia varia*, Walker\*. I was once present in the British Museum when a recently received nest of *Myrapetra scutellaris*, from Monte Video, was opened, and saw therein numerous living examples of *T. varia*, in all its stages. It is probable that all the species of *Trichoscelia* have similar parasitic habits.

### Family HEMEROBIIDÆ.

#### Genus MANTISPA, p. 213.

M. SEMIHYALINA, p. 214, 1=*M. semihyalina*, Serville. I possess examples from Obajos on the Amazons, which differ in having the dilated anterior femora wholly blackish, the other legs somewhat testaceous.

M. BRUNNEA, p. 214, 2=*M. brunnea*, Say.

M. VARIA, p. 214, 3=*M. varia*, Erichs. This is very closely allied to *brunnea*, but probably distinct; the lower edge of the anterior darker portion of the wing runs straight from base to apex, and is not carried downwards to the apical portion of the dorsal margin as in *brunnea*.

M. DECORATA, p. 215, 6=*M. decorata*, Erichs.

M. PROLIXA, p. 215, 7=*M.* —?; not *prolixa*, Erichs.

M. PUSILLA, p. 216, 10=*M. pusilla*, Pallas. The "var." from the East Indies (Ceylon) is different, and allied to *Cora* and *rufescens*.

M. PAGANA, p. 217, 11=*M. styriaca*, Poda.

M. PERLA, p. 217, 12=*M.* —?; the example is of doubtful origin, and, I think, distinct from *perla*; the anterior femora scarcely thicker than the coxæ, and almost cylindrical.

M. TENELLA, p. 218, 16=*M. tenella*, Erichs.

\* Since the above was written, Prof. Westwood has published descriptions of many new species of *Mantispidæ* (vide Trans. Ent. Soc. Lond. ser. 3, vol. v. pp. 501-508). Among them is a species named *Mantispa myrapetrella* (p. 505), which he says cannot possibly be the same as *R. varia* of Walker. Nevertheless the two names are undoubtedly synonymous; but, setting aside the vexed question as to the right of insufficient or erroneous descriptions to carry priority, it is desirable that Westwood's name should be retained, as a *Mantispa varia* previously existed. I cannot understand why Westwood should retain *myrapetrella* in *Mantispa* proper, rather than in *Trichoscelia*, which he still calls only a subgenus. The most important structural difference in the two genera (for I consider *Trichoscelia* undoubtedly a *genus*) consists in the form of the prosternum; and *myrapetrella* has that of *Trichoscelia*, and not the solid structure seen in *Mantispa* proper.

*M. RUFESCENS*, p. 220, 24=*M. rufescens*, Erichs.

*M. CORA*, p. 221, 28=*M. Cora*, Newman. The Malabar example is the type specimen; the other is not different.

*M. AUSTRALASIÆ*, p. 223, 33, for the most part *M. australasiæ*, Guérin; but one example from Van Diemen's Land is *M. vittata*, Guérin, and another from "New Holland," without any special indication of locality, is perhaps an undescribed species.

*M. DELICATULA*, p. 224, 36=*M. delicatula*, Westwood.

*M. DISCOLOR*, p. 224, 37=*M. discolor*, Westwood; the type specimen.

*M. BISERIATA*, p. 225, 38=*M. biseriata*, Westwood; the type specimen. This species differs so greatly from the normal form of *Mantispæ* that I propose for it the generic term *Ditaxis*, which may be thus briefly diagnosed:—

DITAXIS\*, n. g.

*Mantispæ* similis; sed alis latioribus, valde obtusis; costa a subcosta apicis tenuis distante; area costali latiore; venularum gradatarum seriebus duabus.

*M. 4-TUBERCULATA*, p. 225, 39=*M. 4-tuberculata*, Westwood.

*M. LINEOLATA*, p. 226, 43=*M. lineolata*, Westwood; the type specimen.

*M. INDICA*, p. 226, 44=*M. indica*, Westwood; a type specimen.

*M. FENELLA*, p. 227, 46=*Trichoscelia fenella*, Westwood; the type specimen.

*M. VIRIDIS*, p. 227, 47=*M. viridis*, Walker. This is evidently allied to *viridula*, Erichson, but, I think, distinct.

Genus HOPLOPHORA, p. 228.

This belongs to the *Mantidæ* (Orthoptera).

Genus NYMPHES, p. 229.

*N. MYRMELEONIDES*, p. 230, 1=*N. myrmeleonides*, Leach.

*N. EXTRANEUS*, p. 230, 2=*Myiodactylus* (?) *extraneus*, Walker. My previous assertion ('Journal of Entomology,' vol. ii. p. 111), that this

\* I have since received a paper by Brauer ("Beitrag zur Kenntniss der Mantispiden-Gattungen," Verhandl. d. k.-k. zool.-bot. Gesellschaft in Wien, 1867, pp. 281-286), in which he places *M. biseriata* in the genus *Drepanicus* of Blanchard. This Chilean genus is quite unknown to me, save by description; and I feel rather doubtful if our Australian insect will fall into it satisfactorily, and therefore, for the present, retain my proposed generic term *Ditaxis*.

insect possesses ocelli, was incorrect : the vertex has little prominences which have much the appearance of ocelli, but, on closer examination, I can discover nothing to indicate that they are more than blind tubercles. The plantulæ are double as in *Nymphes* and *Myiodactylus* ; yet the antennæ are those of *Osmylus*. I retain it doubtfully in *Myiodactylus* for the present. It is Australian, and the ♀ possesses ventral valves and a borer analogous to those described lower down under *Stenosmylus stenopterus*.

N. SEJUNCTUS, p. 230, 3=*Myiodactylus sejunctus*, Walker. Here I again erred in referring this to *Osmylus* ; it is a true *Myiodactylus*, but of a form different from that *M. osmyloides*, the typical species, and in outward appearance is more like a *Chrysopa*. The following description is drawn up from a male in my collection from Northern Australia :—

MYIODACTYLUS SEJUNCTUS, *Walker*. Viridi-flavus. Antennæ flavæ, apicem versus subvirescentes. Caput flavum, vertice linea media impressa rufescente ; mandibulæ nigræ. Oculi plumbacei. Prothorax longior quam lator, antice angustior, viridi-flavus, longe flavescens-hirsutus ; antice macula media lanceolata piceo-brunnea. Mesothorax metathoraxque brunneo-flavi ; ille antice fovea media piceo-brunnea. Alæ elongatæ, angustatæ, hyalinæ, costa fere recta, area costali angusta, pterostigmate vix obscuriore ; anticæ venis longitudinalibus pallide viridibus, venulis transversalibus nigris (costalibus in parte pallidis) : posticæ venis venulisque fere omnino pallide viridibus ; costalibus ad apices, pterostigmatalibus omnino, nigris. Pedes virescentes. Abdomen flavum, utrinque nigro punctatum ; appendicibus analibus magnis, superioribus in digitulos furcatos productis, inferioribus processu cylindrico fere hyalino, viridi terminato, instructis. (♂.) Long. corp. 6''' ; exp. alar. 1'' 9'''.

*Hab.* in Australia boreali et occidentali. In collect. auct. et Mus. Brit. *Antennæ* not half the length of the wings, thickened beyond the middle, yellow, somewhat greenish towards the apex, slightly hairy. *Head* yellow, the crown with a narrow impressed longitudinal median brownish line ; mandibles blackish. *Eyes* lead-colour. *Prothorax* about twice as long as broad, narrowed in front, hairy, yellow, with a lanceolate pitchy brown spot in the middle of the anterior portion, and a vestige of a spot on the posterior margin. *Meso- and meta-thorax* much broader than the prothorax, yellow, the former with a pitchy brown fovea in the middle of the anterior median lobe. *Wings* elongate, narrow, subacute, the costal margin nearly straight, and the costal area narrowed ; hyaline, the pterostigmatal region rather obscured, all the veins and veinlets finely hairy, the costal margins minutely nigro-punctate : *anterior wings* with all the longitudinal veins (excepting the last on the dorsal margin) pale greenish ; transverse veins and marginal veinlets black, those in the costal area with

a greenish interruption towards their bases; costal veinlets before the pterostigma for the most part simple, apical marginal veinlets mostly simply furcate: *posterior wings* narrower than the anterior; all the veins and veinlets greenish, the apical marginal furcations, the base of the costal veinlets, the apex of those between the radius and its sector, and those in the pterostigmatal region black. *Legs* greyish with a greenish tinge, pilose, the claws tipped with brown. *Abdomen* yellow, obscurely spotted with blackish at the sides, slender, the terminal segment bearing large appendices. From the superior surface of the last segment proceeds a broad yellow plate thickly clothed with strong yellow hairs; this plate is somewhat bent under, and from each lateral margin proceeds a finger-shaped greenish yellow appendice, which is deeply furcate, the branches widely divaricating, and with a small tubercle or tooth in the base of the fork; the ventral segment is also produced into a large plate, on each side of which is a nearly straight cylindrical process directed upwards, nearly transparent, but green at the apex, which is deeply divided, so that it appears to end in two sharp brownish teeth; the ventral plate bears in the middle an elongate, rectangular, truncated, cover-like piece, placed in the cavity between the dorsal and ventral plates and united to the latter.

*M. osmyloides*, Brauer, the typical species, is distinguished by its very broad wings, rounded costa, and broad costal and marginal areas. *M. sejunctus* agrees with it in all important characters, save the shape of the wings, which is only specific. I may remark that the example of *osmyloides* in my collection bears the locality-label "China;" but this is probably an error, which is additionally likely, considering that I have two species from Australia.

Although *Myiodactylus* differs in many important characters from that noble insect *Nymphes myrmeleonides*, yet the filiform antennæ, and the absence of ocelli, seem fully to justify Brauer in placing it with that insect in the family *Nymphidæ*, instituted by Leach for the reception of *N. myrmeleonides*, which in its nerval characters nearly approaches the *Myrmeleonidæ*.

Another species of *Myiodactylus* I describe as under:—

**MYIODACTYLUS ARMATUS**, n. sp. Viridi-flavus. Antennæ pallide flavæ, viridi terminatæ. Caput flavum; vertice corrugato, postice elevato. Palpi fuliginoso cingulati. Oculi plumbacei. Prothorax longior quam latior, antice vix angustior, postice spatio magno concavo linea elevata longitudinali instructus; flavus, utrinque lineis obscure fuscis. Alæ elongatæ, subangustatæ, acutæ, anticarum costa vix arcuata; hyalinæ, pterostigmate albido: anticæ macula parva radii basi nigra, venis longitudinalibus albidis, venulis transversalibus furcisque marginalibus fere omnino nigris: posticæ venis venulisque



plerumque pallidis, harum costalibus, subcostalibus, multis apicem versus dimidioque furcularum nigris. Pedes albidī. Abdomen flavo-fuscum (colores mutati); venter ante apicem unguiculis duobus elongatis armatus. (♀.) Long. corp. 7''; exp. alar. 1'' 11''.

*Hab.* in Australia boreali. In collect. auct.

*Antennæ* not more than half the length of the wings, thickened beyond the middle, very pale yellow, the apical portion greenish, slightly hairy. *Head* yellow, the vertex corrugated in the middle and elevated posteriorly, a slightly raised flattened plate at the base of each antenna; front with a slightly raised flat transverse space below the antennæ, beyond this space irregularly corrugated; palpi with broad fuliginous rings. *Prothorax* about twice as long as broad, scarcely narrower in front, the sides nearly parallel, yellow, with obscure lateral fuscous lines; the anterior margin rounded; at about a third of its length anteriorly is a transverse impression; the hinder portion bears a large concave space the edges of which are raised, the anterior edge being strongly rounded, and divided in the middle by a raised longitudinal line. *Meso-* and *metathorax* yellow with a greenish tinge, unspotted, but with several impressed lines and spaces. *Wings* elongate, acute, the costa of the anterior very slightly rounded; hyaline, the pterostigma whitish; *anterior wings* with all the longitudinal veins whitish, almost all the transverse veinlets and marginal forks black, in the subcostal area are several transverse veinlets, those towards the base starting from the subcosta but not reaching the radius, and hence appearing as black dots; a small black spot at the base of the radius: *posterior wings* with the greater part of the veins and veinlets pale, the costal veinlets, many towards the apex, and the apical furcations (for the most part only in their basal half) black. The margins and all the veins and veinlets are strongly hairy in all the wings. *Legs* whitish, hairy, the tarsi somewhat obscure, and the claws brownish. *Abdomen* yellowish fuscous (the colours altered) slender, dilated and laterally compressed at the apex, clothed with fine hairs, the apex obtuse and fringed with long hairs; the seventh abdominal segment beneath is furnished with an extraordinary appendage, consisting of a strong tubercle from the lower edge of which proceed two long bent and incurvated needle-shaped claws reaching nearly to the extremity of the abdomen.

I possess one example, which I have little doubt is a female, from Northern Australia; the wings are broader and more acute than in *sejunctus*, and the prothorax is differently formed.

#### Genus OSMYLUS, p. 231.

O. CHRYSOPS, p. 232, 1=*O. maculatus*, F. I adopt the Fabrician name, because the Linnean description of *Hemerobius chrysoptus* cannot apply to this insect, although in his collection it bears the label

"*chrysops*" in his own handwriting. Unfortunately this collection passed through so many hands before it reached its final resting-place, that too great reliance should not be placed on the labels when the insects do not agree with the descriptions.

- O. STRIGATUS, p. 233, 2=*O. strigatus*, Burm. This will not generically agree with *Osmylus*, as was pointed out by Burmeister. Recently Hagen ('*Hemerobiidarum Synopsis Synonymica*') has briefly diagnosed a new genus for its reception, but without name. I propose that of *Porismus*, which may be thus characterized:—

PORISMUS, n. g.

Antennæ moniliformes, alis breviores. Caput parvum, fronte elongato-triangulari. Palpi maxillaris articulis incrassatis. Ocelli tres, approximati. Prothorax elongatus, duplo longior quam latior, antice gradatim angustior. Alæ latæ, apicibus rotundatis: anticæ spatio costali basi dilatato, venulis costalibus transversalibus pernumerosis; subcosta cum radio conjuncta, venulis transversalibus in spatio subcostali numerosis; sectore primo cæteros emittens, ab radio distante sed ad apicem approximato; venis longitudinalibus 5<sup>a</sup> et 6<sup>a</sup> parallelis, curvatis; venulis transversalibus pernumerosis. Pedes graciles, hirsuti; tarsi articulo primo cæteris longiore; unguiculi simplices; pulvilli magni. Abdomen gracile.

It differs from *Osmylus*, *inter alia*, by its longer and more slender prothorax, and especially in the neuration. In *Osmylus* the first sector runs parallel with the radius, and is separated from it by a small space, whereas in *Porismus* it is distant, excepting at the apex; in *Osmylus* there is only one transverse veinlet, placed at the base of the subcostal area; in *Porismus* there are numerous veinlets, along the whole length of that area; the direction of the 5th and 6th longitudinal veins is also different, and the network generally much closer.

*P. strigatus* appears to be very common in Australia, judging from the numerous examples I have seen.

- O. VALIDUS, p. 233, 3=*Polystæchotes punctatus*, F. teste Hagen, who states that he has seen the type described by Fabricius in Banks's Museum. I have been unable to find this type. It is singular that Fabricius should, a few years later, have again described an insect so little variable under another name (*Hemerobius nebulosus*).

- O. TENUIS, p. 233, 4. For this insect I propose the generic term *Stenosmylus*; the genus should probably be placed between *Myiodactylus* and *Osmylus*; it possesses the ocelli and antennæ of the latter, but the form of the plantulæ approaches that of the former; the general form is remarkably narrow.

## STENOSMYLUS, n. g.

Antennæ moniliformes, alis breviores. Labrum emarginatum. Palpi parvi. Ocelli tres. Prothorax elongatus, subcylindricus. Pedes graciles; plantulæ bifidæ. Alæ elongatæ, angustæ, ad apicem subrotundatæ, aut acutæ; subcosta cum radio conjuncta; sector primus radio parallelus, cæteros emittens; spatium subcostale venula transversali una basali; venulæ subcostales numerosæ; venulæ transversales in disco pernumerosæ.

1. STENOSMYLUS TENUIS, *Walker*.

2. STENOSMYLUS STENOPTERUS, n. sp. Flavo-fuscus. Antennæ pallide flavæ. Caput flavum, vertice fusco quadrivittato, fronte fusco varia. Prothorax flavo-fuscus, nigricante vittatus. Alæ perangustæ, elongatæ, acutæ: anticæ albo-hyalinæ, maculis costalibus apicem versus strigaeque longitudinali in dimidio apicali marginem dorsalem versus fuscis; venis longitudinalibus fusco longitudinaliter striatis, albo interruptis; venulis transversalibus albis, nigro tuberculatis, posticæ hyalinæ, pterostigmate brunneo, venis longitudinalibus fuscis, venulis pterostigmatalibus marginalibusque nigro tuberculatis. Pedes flavi, pilosi; tibiarum et tarsorum articularum apicibus nigricantibus. Abdomen fuscum; apice incrassato, terebra compressa, sursum incurvata, instructo; infra ante apicem valvulis duabus bifidis instructum. (♀.) Long. corp. 5'''-6''' ; exp. alar. 15'''-20'''.

*Hab.* in Australia. In Mus. Brit.

Yellowish fuscous. *Antennæ* shorter than the wings, pale yellow, hairy. *Head* yellow; vertex with four fuscous longitudinal stripes; face with fuscous markings; palpi fuscous; ocelli black. *Prothorax* with the length more than twice the breadth, slightly narrowed anteriorly, hairy at the sides; yellowish fuscous, with longitudinal blackish streaks in the middle and at the sides. *Mesothorax* yellowish fuscous, striped with black. *Wings* very narrow, elongate, acute: *anterior wings* whitish hyaline; a fuscous streak from the apex reaches nearly halfway to the base near the dorsal margin; some fuscous spots on the terminal portion of the costal margin; longitudinal veins with long fuscous streaks interrupted by shorter white spaces; costal and marginal veinlets whitish, with numerous thickened black dots; discal veinlets for the most part half black and half white, each with one or two thickened blackish dots in the middle: *posterior wings* hyaline, iridescent; pterostigma brownish, pterostigmatal and marginal veinlets with numerous thickened black dots; longitudinal veins and discal veinlets fuscous, the latter showing a trace of the thickened dots. *Legs* yellow; the tips of the tibiæ and of the tarsal joints blackish fuscous, the terminal tarsal joint wholly fuscous. *Abdomen* fuscous, the apex incrassated and testaceous; at the base of the 6th ventral

segment a large valve, on each side of which is a long straight spine dilated towards the apex; at the apex of the 7th ventral segment a deeply bifid semitransparent valve, the produced points of which are directed towards the base and opposed to the spines on the other valve; between these valves is a deeply concave space; the clavate or thickened portion of the terminal segment is provided with a long sabre-shaped flattened yellow borer, curved upwards.

Three examples, varying much in size, in the collection of the British Museum.

3. *STENOSMYLUS* (?) *LONGIPENNIS*, Walker, vide infra.

O. *CONSPERSUS*, p. 234, 5 = *Osmylus conspersus*, Walker. A true *Osmylus*.

O. *LONGIPENNIS*, p. 235, 6. I place this provisionally in *Stenosmylus*; but it is aberrant, and will probably eventually form a new genus.

O. *TUBERCULATUS*, p. 235, 7 = *Osmylus tuberculatus*, Walker. Probably a true *Osmylus*.

O. *LONGICORNIS*, p. 235, 8. This is a very aberrant insect, and, from its setaceous antennæ, it should perhaps be placed in the *Chrysopidæ*. Hagen (Neurop. N. America, p. 210) places it provisionally in the uncertain genus *Meleoma*, for want of further information. The type is in bad condition, and I postpone further details on its structure.

Genus *CHRYSOPA*, p. 236.

C. *VITTATA*, p. 237, 1. Under this label are two or three small species very distant from the true *vittata*; the example from Malaga may be *C. microcephala*.

C. *CONGRUA*, p. 238, 2 = *C. congrua*, Walker. Allied to *C. vulgaris*, L., but differs in its narrower and more pointed wings, more open neurotation, and shorter pubescence.

C. *REMOTA*, p. 238, 3 = *C. remota*, Walker. The examples from the different localities present no appreciable differences.

C. *OCEANICA*, p. 238, 4 = *C. oceanica*, Walker. Very closely allied to *remota*, but apparently distinct.

C. *BASALIS*, p. 239, 5 = *C. basalis*, Walker.

C. *CONCOLOR*, p. 239, 6 = *C. congrua*, Walker.

C. *VULGARIS*, p. 239, 7. The one with the label "*vulgaris*" is a much damaged and almost destroyed specimen, apparently *C. alba*; the others are *vulgaris* and *alba*.

C. *INVARIA*, p. 241, 11 = *C. invaria*, Walker.

C. *DIVISA*, p. 242, 13 = *C. collaris*, Schneider.



- C. ATTENUATA, p. 242, 14 = *C. attenuata*, Walker.
- C. THORACICA, p. 243, 15 = *C. thoracica*, Walker. The example shows no trace of the rufous streak on each side of the antennæ mentioned by Hagen in 'Neurop. N. America.'
- C. ALBA, p. 243, 16 = *C. alba*, L.
- C. REPLETA, p. 244, 17 = *C. repleta*, Walker.
- C. HYBRIDA, p. 245, 20 = *C.* —? Not *hybrida* of Schneider.
- C. 4-PUNCTATA, p. 246, 22, is wanting, nor is there any pin-hole to indicate that it has ever been there.
- C. INFECTA, p. 246, 23 = *C. infecta*, Newm. Labro antice paulo emarginato; belongs to another section.
- C. CINCTA, p. 247, 24 = *C. cincta*, Schnd.
- C. NIGRICOSTATA, p. 250, 34, wanting.
- C. 7-PUNCTATA, p. 251, 36 = *C. 7-punctata*, Wesm.
- C. INTERMEDIA, p. 252, 40 = *C. intermedia*, Schnd. (from Santarem). The one without locality is different.
- C. INTERNATA, p. 252, 41. This equals *C. ampla*, p. 268, 72; and, as the examples of *C. internata* are placed in a wrong section, I think the name *ampla* should be retained.
- C. NIGROVARIA, p. 253, 42 = *C. nigrovaria*, Walker. The "var.  $\beta$ " is a very different species.
- C. RAMBURII, p. 254, 43 = *C. Ramburii*, Schnd.
- C. SIGNATA, p. 254, 44. The example from Van Diemen's Land = *C. Ramburii*; the other is different, but not *signata* of Schneider.
- C. INNOTATA, p. 254, 45 = *C. innotata*, Walker. Antennar. artic. secund. fuliginoso.
- C. TRANSVERSA, p. 255, 46 = *C. collaris*, Schneider, var. ?; appears to differ only in the altogether black costal veinlets.
- C. ASPERSA, p. 256, 48 = *C. aspersa*, Wesm.
- C. ABBREVIATA, p. 257, 51 = *C.* —? Certainly not *abbreviata*, but more closely allied to *Zelleri*; the example is perhaps not European.
- C. LATIPENNIS, p. 257, 54 = *C. ypsilon*, Fitch.
- C. CHLOROPHANA, p. 259, 55 = *C. transmarina*, Hagen, *teste* Hagen. There are probably two species intermixed; but it belongs to a group in which the differences seem to depend so much upon the presence or absence of one or other of the complicated markings of the head, and are perhaps only accidental, that I decline to give any positive opinion on the examples mentioned by Mr. Walker.

The following citation is omitted in Hagen's 'Hemerob. Synop. synonymica':—*C. illinoiensis*, Shimer, Proc. Ent. Soc. Philadelphia, vol. iv. p. 208 (January 1865), from Illinois.

*C. OCCULTA*, p. 260, 56 = *C. ypsilon*, Fitch.

*C. PERLA*, p. 262, 60 = *C. perla*, L.

*C. CAPITATA*, p. 264, 63 = *C. capitata*, F.

*C. FULVICEPS*, p. 265, 64 = *C. fulviceps*, Steph.

*C. ÆQUALIS*, p. 266, 67 = *C. æqualis*, Walker.

*C. STIGMATICA*, p. 267, 69 = *C. stigmatica*, Rambur.

*C. INSIGNIS*, p. 267, 70 = *C. insignis*, Walker.

*C. VARIA*, p. 268, 71 = *C. varia*, Schnd.

*C. AMPLA*, p. 268, 72 = *C. ampla*, Walker. Closely allied to *C. varia*.

*C. INSULARIS*, p. 269, 73 = *C. insularis*, Walker. Also allied to *C. varia*, but smaller.

*C. CONFORMIS*, p. 269, 74 = *C. conformis*, Walker.

*C. ANTICA*, p. 270, 76 = *C. antica*, Walker. Allied to *C. pallens* of Rambur, and *C. guadarramensis* of Ed. Pictet.

*C. DIVERSA*, p. 271, 77 = *C. diversa*, Walker.

*C. MARIONELLA*, p. 271, 78 = *Apochrysa Marionella*, Guérin.

*C. AURIFERA*, p. 272, 79 = *Apochrysa aurifera*, Walker.

*C. LUTEA*, p. 273, 80 = *Apochrysa lutea*, Walker.

#### Genus HEMEROBIUS, p. 276.

*H. VIRIDIPENNIS*, p. 276, 1 = *Rapisma viridipennis*, Walker. In my description of the genus *Rapisma* (Trans. Ent. Soc. ser. 3, vol. v. p. 353) I have *incorrectly* stated that there is no recurrent venule at the base of the costal area; there is such a venule, but it is not conspicuous.

*H. PHALÆNOIDES*, p. 277, 2 = *Drepanopteryx phalænoides*, L.

*H. BINOCULUS*, p. 278, 3 = *Drepanopteryx binoculus*, Newm. This, with *D. instabilis*, M'Lach., and *D. humilis*, M'Lach., is closely allied to *phalænoides*, notwithstanding its distant locality. The presence of a very short transverse veinlet near the end of the subcostal area makes it deceptively appear as if the subcosta and radius became suddenly confluent; a similar veinlet is sometimes found in *D. phalænoides*.

*H. FLAVICORNIS*, p. 278, 4 = *Berotha flavicornis*, Walker.

*H. HAMATUS*, p. 278, 5 = *Berotha hamatus*, Walker.

*H. MIMICUS*, p. 279, 6 = *Psychopsis mimica*, Newm. It is probable that *P. elegans*, Guérin (*Arteriopteryx elegans*, Guérin, 'Icon. p. 389),

is distinct from *P. mimica*, though evidently very closely allied. I have an example which agrees exactly with Guérin's description, and which I had originally placed as possibly a sexual form or variety of *P. mimica*.

H. CÆLIVAGUS, p. 279, 7 = *Psychopsis cælivagus*, Walker.

H. HIRTUS, p. 280, 8 = *Megalomus hirtus*, L.

H. LONGICOLLIS, p. 281, 12 = *Berotha longicollis*, Walker.

H. SUBANTICUS, p. 282, 13 = *Micromus subanticus*, Walker.

H. OBSCURUS, p. 282, 14 = *H. humuli*, L.

H. POSTICUS, p. 283, 15 = *Micromus posticus*, Walker. ♂. Abdominis segmento ultimo ventrali in laminam latam obtusam producto, appendicibus spiniformibus.

This is probably the same as *M. insipidus*, Hagen. I possess four examples from New York.

H. FUSCUS, p. 283, 16 = *H. subnebulosus*, Steph.; vide remarks to *H. nervosus*, infra.

H. SUBNEBULOSUS, p. 284, 17 = *H. subnebulosus*, Steph.

H. PALLIDUS, p. 284, 18 = *H. micans*, Oliv.

H. PELLUCIDUS, p. 284, 19 = *Hemerobius pellucidus*, Dale.

H. NERVOSUS, p. 285, 20. The specimen from Children's collection = *H. humuli*, L.

Under the name of *H. nervosus*, two European species are confounded; they considerably resemble each other, save in the anal appendices, which are strikingly dissimilar. I reserve details for my work on the British *Hemerobiidæ*, but in the meantime diagnose the special characters as under:—

H. NERVOSUS, Fab. et auct. Appendices anales fere regulariter curvatæ. Hab. in Europa continent. vulgatissimus, in Anglia aliquanto rarus.

I have seen but few British examples. It is probably the species intended by all continental authors. For the other I use the name

H. SUBNEBULOSUS, Stephens. Appendices anales elongatæ, latæ, rectæ; apicibus truncatis, dilatatis, infra spina elongata, curvata, ad apicem extus unidentata instructis.

Hab. in Anglia vulgatissimus.

I have not seen a continental example of this, nor is it known as such by Dr. Hagen.

The types of *subnebulosus* (in part), *humuli*, *fuscus*, and *nervosus* of Stephens's "Illustrations" are this species, which is exceedingly abundant in Britain, and very variable.

- H. NEBULOSUS, p. 285, 21 = *H. limbatus*, Wesm.
- H. SIMULANS, p. 285, 22 = *H. simulans*, Walker.
- H. MARGINATUS, p. 286, 23. The Nova-Scotian example is a female; it does not appear to differ from the European *H. marginatus*, Steph. (*flexuosus*, Hag.).
- H. HUMULI, p. 286, 24. The English example = *H. humuli*, L. I am not sure if the American insect be distinct; in general appearance it is precisely like the European, but may perhaps differ in the appendices; I possess several examples from New York.
- H. PERELEGANS, p. 287, 25. Both examples are in Stephens's collection, and = *H. limbatus*, Wesm., dark vars.
- H. LUTESCENS, p. 287, 26. The British example = *H. humuli*, L.; the one from Children's collection is very different, and doubtful, being in bad condition.
- H. AFFINIS, p. 287, 27 = *H. humuli*, L.
- H. PAGANUS, p. 287, 28 = *H. humuli*, L.
- H. APICALIS, p. 288, 29 = *H. humuli*, L.
- H. PUNCTATUS, p. 288, 30 = *H. micans*, Oliv.
- H. CRISPUS, p. 288, 31 = *H. limbatus*, Wesm. The American examples do not essentially differ from the European, and have similar appendices.
- H. STIGMA, p. 288, 32 = *H. limbatus*, Wesm.
- H. MARSHAMI, p. 289, 34 = *H. elegans*, Steph. (*pygmæus*, Rambur).
- H. OBLITERATUS, 289, 35. The specimen immature; apparently the same as *crispus* (*limbatus*).
- H. AUSTRALIS, p. 289, 36 = *H. australis*, Walker. Closely allied to *humuli*.
- H. VARIEGATUS, p. 290, 37 = *Micromus variegatus*, F.
- H. CONCINNUS, p. 290, 38 = *H. concinnus*, Steph. (*lutescens*, F.; *cylindripes*, Wesm.).
- H. PINI, p. 291, 39 = *H. limbatus*, Wesm.
- H. LONGIFRONS, p. 291, 40 = *H. longifrons*, Walker. This is a remarkable insect, with the facies of *H. nervosus*, but with broader and more obtuse wings, and very distinct. In my European collection I have three examples, received from Prof. Zeller, which do not appear to be different from the American: the latter has four sectors, and my European insect, as a rule, only three; but one specimen has three in one fore wing, and four in the other; the legs are entirely pale in the American, but sometimes varied with fuscous in the European. All



the individuals are females, which sex is remarkable for the possession of a broad elongated flattened borer at the apex of the abdomen, indicating some peculiar habit. I subjoin a more correct and detailed description :—

*HEMEROBIUS LONGIFRONS*, *Walker*. Nigro-fuscus, vitta dorsali ferrugineo-fusca. Antennæ flavæ, apice obscuriore. Frons nitente piceo-nigra. Alæ latæ, obtusæ: anticæ albido-hyalinæ, fuliginoso nebulosæ; fasciis transversis tribus nigro-fuscis; venis venulisque albis, confertim nigro punctatis striatisque; venulis gradatis externe 7-8 valde irregularibus, interne 6-7, et ad basin 4, omnino nigris; sectoribus 3 vel 4: posticæ hyalinæ, venis venulisque nigris. Pedes pallide flavi; in exemp. Europ. tibiis aliquando inconspicue fusco notatis, femoribus posterioribus in parte fuscis. Abdomen nigro-fuscum, terebra lata, elongata, depressa, acutiuscula instructum. (♀.) Long. corp. 3-4''; exp. alar. 9-10''.

*Hab.* in Hudson's Bay, America boreali (*Barnston*); Europa (Spitzberg, Silesia, Bameralp, Steyermark) (*Zeller*) 4 ♀.

*H. FASCIATUS*, p. 291, 41 = *H. limbatus*, *Wesm.* In *Stephens's* coll.

*H. FUSCATUS*, p. 296, 60 = *Sisyra fuscata*, *F.*

*H. NITIDULUS*, p. 296, 61 = *Sisyra Dalii*, *M'Lach.*

*H. CONFINIS*, p. 297, 62 = *Sisyra fuscata*, *F.*

*H. VICARIUS*, p. 397, 65 = *Sisyra vicaria*, *Walker.*

*Note.*—The genus *Dromophila*, inserted at p. 298, belongs to the Trichoptera; and *D. montana* = *Enoicyla pusilla*, *Burmeister*, ♀.

#### Genus CONIORTES, p. 208.

All the examples noted by *Walker* are in *Stephens's* collection, and the nomenclature is that of the 'Illustrations' of that author. *Coniortes*, *Westwood* = *Coniopteryx*, *Haliday.*

#### Family MYRMELEONIDÆ.

##### Genus MYRMELEON, p. 300.

In my examination of the enormous number of species under this head (ninety-eight are described as new by *Mr. Walker*), I have endeavoured to fix them in the limits of the generic synopsis given by *Hagen* in his 'Hemerobiidarum Synopsis Synonymica.' *Walker* places them in sections; but the species in many instances do not accord with his subdivisions. It will be necessary that at some future time an extensive splitting up of some of *Hagen's* genera shall be made. *Palpares* is for the most part very homo-

geneous; yet *P. gigas* and its allies seem to form a genus apart, and I have in this paper (*ante*, p. 243) proposed a generic term for *P. hæmatogaster*. *Stenares* forms a natural group. *Pamexis* is also natural; yet *M. pardalinus* of Walker might be placed either here or in *Palpares*. *Tomateres* is to a certain extent made up of nearly allied forms, but their relationship to *Palpares* is close. *Dimares* is very natural. *Stilbopteryx* differs widely from any other group. *Acanthaclisis* is made up of species with a particular facies, yet contains well-marked groups, *A. horridus* and *A. fallax* being especially aberrant. The words in Hagen's diagnosis, "calcaribus fractis" only hold good for a portion of the species; in the rest the spurs are regularly curved. *Glenurus* is especially heterogeneous, and stands greatly in need of redivision: the Australian species, and especially *G. erythrocephalus*, have little in common with the others. *Creagris* is apparently natural. *Gymnocnemis* comprises very few species, which readily fall into one genus. *Mecistopus* should probably be only retained for the typical species; the South American *M. efferus* and *M. prædator* are aberrant. *Formicaleo* is tolerably natural, but should perhaps include some species placed in *Glenurus*. *Myrmecælurus* should be retained for *M. trigrammus* and its near allies, which alone possess the character "abdomen maris ante apicem penicillatum;" the other species are aberrant. *Macronemurus* seems to be natural. *Myrmeleon*, if regarded as a group distinguished by the spurs not exceeding the first tarsal joint, is tolerably homogeneous, yet it contains discordant materials when viewed from other points.

The number of species of *Myrmeleon*, in the old sense, will probably be eventually found to exceed 500; and it is evident that in such a mass very many generic forms must exist. It remains for a monographer to sift this mass; until then I fear that a natural classification of the *Myrmeleonidæ* cannot be looked for, and we must be content to improve upon the generic groundwork laid down by Hagen.

M. GIGAS, p. 301, 1 = *Palpares gigas*, Dalm.

M. CONTRARIUS, p. 301, 2 = *Palpares contrarius*, Walker.

M. SOLLICITUS, p. 302, 3 = *Palpares cephalotes*, Klug, ♀. This insect was taken during the exploring voyage of the 'Blonde;' but no locality is mentioned. Hagen (*Stett. Ent. Zeit.* 1860, pp. 360-361) thinks it may be from the Society Islands. This I conceive to be impossible, and consider it African or Arabian. The specimen agrees perfectly with Klug's figures (*Symb. Phys.*) of his *cephalotes*.

- M. INCLEMENS, p. 303, 4 = *Palpares inclemens*, Walker, ♀.
- M. CEPHALOTES, p. 304, 5. This is probably the *cephalotes* of Rambur; but I doubt much if it be identical with Klug's species; only males are in the collection, and there is a possibility that *P. inclemens* may be the female of it.
- M. FURFURACEUS, p. 305, 6. The same as those under *cephalotes*, but slightly differing in the markings.
- M. PATIENS, p. 305, 7 = *Palpares patiens*, Walker.
- M. LIBELLULOIDES, p. 305, 8 = *Palpares libelluloides*, L. One of the specimens from Tunis is *P. hispanus*, Hagen.
- M. SPECIOSUS, p. 306, 9. For the most part *Palpares speciosus*, L.; but four examples are *P. caffer*, Burm.
- M. TIGRIS, p. 307, 10 =, I think, certainly *Palpares manicatus* of Rambur, and very probably the true *tigris* of Dalman.
- M. INFIMUS, p. 307, 11 = *Palpares infimus*, Walker.
- M. PARDUS p. 308, 12 = *Palpares pardus*, Rambur.
- M. SUBDUCENS, p. 308, 13 = *Palpares cephalotes*, Klug. This insect is from the voyage of the 'Blonde,' and differs only very slightly in markings from that described as *sollicitus*.
- M. INCOMMODUS, p. 309, 14 = *Palpares incommodus*, Walker.
- M. ZEBRATUS, p. 310, 15. According to Hagen (Stett. Ent. Zeit. 1860) this is not the same as *zebratus* of Rambur: the description of the latter seems to me to agree with Walker's insect, excepting some slight variation in the markings of the posterior wings.
- M. EXPERTUS, p. 311, 16 = *Palpares pardus*, Rambur.
- M. PARDALINUS, p. 314, 26. This I think cannot be the same as *M. pardalinus* of Burmeister, which seems to me to be a *Pamexis*, closely allied to *conspurcatus*. Walker's insect has the form of *Pamexis*, but wants the pulverulent appearance of those insects. I call it provisionally *Palpares? brachypterus*.
- M. OCCITANICUS, p. 315, 28 = *Acanthaclisis occitanica*, Vill. *Calcaribus abrupte inflexis*; *area costali biareolata*.
- M. DISTINCTUS, p. 316, 30, var.? According to Hagen not the species of Rambur. *Calcaribus abrupte inflexis*; *area costali uniareolata*.
- M. EDAX, p. 317, 32. According to Hagen = *gulo*, Burm.; the specimens have been in alcohol, and are much altered in the coloration of the body. *Calcaribus abrupte inflexis*; *area costali uniareolata*.
- M. LONGICOLLIS, var.?, p. 318, 34. Not Rambur's species. *Calcaribus abrupte inflexis*; *area costali biareolata*.

- M. **FUNDATUS**, p. 320, 36=*Acanthaclisis fundata*, Walker. Calcaribus regulariter curvatis; area costali biareolata.
- M. **SUBTENDENS**, p. 321, 37=*Acanthaclisis subtendens*, Walker. Calcaribus regulariter curvatis; area costali biareolata.
- M. **MOLESTUS**, p. 322, 38. The same as *Acanthaclisis distincta*, Walker.
- M. **FERALIS**, p. 322, 39=*Acanthaclisis feralis*, Walker. Calcaribus abrupte inflexis; area costali uniareolata.
- M. **FERUS**, p. 323, 40=*Acanthaclisis atra*, Fab., teste exemp. typ. in collect. Banks. Calcaribus regulariter curvatis; area costali uniareolata.
- M. **IMPOSTOR**, p. 324, 41=*Acanthaclisis fallax*, Ramb. Calcaribus regulariter curvatis; alis latioribus, area costali plerumque biareolata, venulis irregularibus.
- M. **PERITUS**, p. 325, 42=*Stenares hyæna*, Dalman.
- M. **IMPROBUS**, p. 326, 43=*Stenares improbus*, Walker.
- M. **INCLUSUS**, p. 327, 44=*Acanthaclisis inclusa*, Walker. Calcaribus regulariter curvatis; alis latioribus, area costali plerumque biareolata, venulis irregularibus.
- M. **LONGICAUDUS**, p. 329, 46=*Macronemurus abdominalis*, Say. There appears to be some confusion about this species and the next. In Hagen's 'Neurop. N. Amer.' p. 226, *abdominalis* is said to have "no spurs;" in his 'Hemerob. Synop. Synonym.' it is placed in *Macronemurus*, to which genus Walker's species undoubtedly belongs; and *longicaudus* of Burmeister is placed in *Myrmeleon*, in its limited sense. I believe that Hagen possesses Burmeister's type, and I cannot unravel the perplexity.
- M. **CONSPERSUS**, 329, 47=*Macronemurus irroratus*, Rambur. In the 'Neurop. N. Amer.' both *irroratus* and *conspersus* are given as synonyms of *abdominalis*.
- M. **NEBULOSUS**, p. 330, 48=*Macronemurus nebulosus*, Rambur?
- M. **INIQUUS**, p. 330, 49=*Macronemurus iniquus*, Walker.
- M. **IMMITIS**, p. 331, 50=*Macronemurus immitis*, Walker.
- M. **VERSUTUS**, p. 331, 51=*Macronemurus versutus*, Walker.
- M. **FEROX**, p. 332, 52=*Macronemurus ferox*, Walker.
- M. **ANOMALUS**, p. 333, 54=*Glenurus anomalus*, Rambur. Walker queries the determination; but the insect seems to agree perfectly with Rambur's description.
- M. **TETRAGRAMMICUS**, p. 335, 59=*Formicaleo tetragrammicus*, Pall.
- M. **HORRIDUS**, p. 336, 61=*Acanthaclisis horridus*, Walker. Calcaribus



bus valde curvatis; alis latis; area costali uniareolata. This is a very abnormal species of the genus.

M. PERICULOSUS, p. 337, 62=*Myrmeleon periculosus*, Walker. Calcaribus artic. tar. 1<sup>a</sup> æqualibus.

M. INGENIOSUS, 337, 63=*Formicaleo ingeniosus*, Walker.

M. AUDAX, p. 338, 64=*Formicaleo audax*, Walker.

M. GRAVIS, p. 339, 65=*Formicaleo gravis*, Walker.

M. STRIOLA, p. 340, 66=*Formicaleo striola*, Leach. A species very widely distributed; I possess it from the Fiji Islands. It is probable that *M. bistrigatus*, Rambur, is only a strongly marked form, and that Rambur's name should be retained, that of Leach being only in M.S.; the description is by Walker.

M. PERJURUS, p. 340, 67=*Formicaleo striola*, Leach.

M. TORVUS, p. 341, 68. Not to be separated from *F. striola*, and identical therewith; the wings seem slightly narrower.

M. VERENDUS, p. 342, 69=*Formicaleo verendus*, Walker.

M. VESANUS, p. 343, 70=*Formicaleo vesanus*, Walker.

M. MINAX, p. 343, 71=*Formicaleo verendus*, Walker.

M. PUGNAX, p. 344, 72=*Formicaleo pugnax*, Walker. Perhaps=*M. mustelinum*, F.

M. VAFER, p. 345, 73=*Formicaleo vafer*, Walker.

M. DIRUS, p. 346, 74=*Formicaleo dirus*, Walker.

M. LENTUS, p. 346, 75=*Formicaleo dirus*, Walker.

M. TRUCULENTUS, p. 347, 76=*Formicaleo truculentus*, Walker.

M. VIOLENTUS, p. 348, 77=*Formicaleo striola*, Leach. A variety without the dark line in the apex of the posterior wings: one example of *perjurus* (*vide supra*) shows only a slight trace of this line.

M. ACER, p. 348, 78=*Myrmeleon acer*, Walker.

M. CAUTUS, p. 349, 79=*Formicaleo cautus*, Walker.

M. DURUS, p. 350, 80=*Formicaleo durus*, Walker. The example has been in spirits, and its original form is not recognizable.

M. PERFIDUS, p. 350, 81=*Creagris perfidus*, Walker. Closely allied to the European *C. plumbeus*.

M. INSIDIOSUS, p. 350, 82=*Macronemurus appendiculatus*, Lat.

M. V-NIGRUM? p. 351, 84. This closely agrees with Rambur's description of his European *v-nigrum*, but can scarcely be the same species. It is identical with *Creagris mortifer*, Walker.

- M. PALLIDIPENNIS, p. 352, 85 = *Creagris plumbeus*, Oliv.
- M. AFRICANUS, p. 352, 86 = *Creagris africanus*, Rambur. Scarcely distinct from *C. plumbeus*.
- M. MORTIFER, p. 353, 88 = *Creagris mortifer*, Walker.
- M. PERVIGIL, p. 354, 89 = *Creagris mortifer*, Walker.
- M. SEDULUS, p. 355, 90 = *Creagris perfidus*, Walker.
- M. LUGDUNIENSIS, p. 355, 91 = *Creagris plumbeus*, Oliv.
- M. APPENDICULATUS, p. 356, 93 = *Macronemurus appendiculatus*, Lat.
- M. INFESTUS, p. 357, 94 = *Glenurus infestus*, Walker.
- M. NEFANDUS, p. 357, 95 = *Macronemurus nefandus*, Walker.
- M. ADVERSUS, p. 358, 96 = *Creagris perfidus*, Walker.
- M. BARBARUS, p. 358, 97 = *Macronemurus barbarus*, Walker.
- M. DESPERATUS, p. 359, 98 = *Formicaleo vafer*, Walker.
- M. PERNICIOSUS, p. 360, 99 = *Formicaleo vafer*, Walker.
- M. ABDITUS, p. 360, 100 = *Macronemurus abditus*, Walker.
- M. NIGROCINCTUS? p. 361, 101 = *Glenurus obsoletus*, Say. I believe the locality "Australia" to be an error.
- M. TACITUS, p. 362, 102 = *Glenurus tacitus*, Walker.
- M. FLAVUS, p. 363, 103 = *Myrmecælurus trigrammus*, Pallas.
- M. TAPPA, p. 364, 107 = *Formicaleo Tappa*, Walker. Perhaps the ♀ of *vesanus*; the tibiæ distinctly fasciated.
- M. MALEFIDUS, p. 364, 108 = *Formicaleo vafer*, Walker.
- M. INFIDUS, p. 365, 109 = *Myrmecælurus infidus*, Walker.
- M. ACERBUS, p. 366, 110 = *Myrmecælurus acerbus*, Walker. Closely allied to *M. trigrammus*, differs in the subcosta being black, interrupted with yellow, the radius wholly black, and some of the other veins also black.
- M. MENDAX, p. 366, 111 = *Myrmecælurus mendax*, Walker.
- M. SOLERS, p. 367, 112 = *Myrmecælurus solers*, Walker.
- M. FORMICARIUS, p. 368, 113 = *Myrmeleon formicarius*, L.
- M. INOPINUS, p. 368, 114 = *Myrmeleon inopinus*, Walker.
- M. LANCEOLATUS, p. 369, 115 = *Myrmeleon lanceolatus*, Rambur.
- M. NOTATUS, p. 369, 116 = *Megistopus flavicornis*, Rossi.

- M. INNOTATUS, p. 371, 123 = *Myrmeleon formicalynx*, L. Teste exemp. typ. in collect. Linn.
- M. INCONSPICUUS, p. 372, 125 = *Myrmeleon Leachii*, Guilding.
- M. LEACHII, p. 373, 127 = *Myrmeleon Leachii*, Guilding.
- M. TRISTIS, p. 373, 128 = *Myrmeleon tristis*, Walker.
- M. LETHALIS, p. 374, 129 = *Myrmeleon lethalis*, Walker, *i. e.* the specimen bearing the label "*lethalis*;" the other two are very different and = *Formicaleo leucospilos*, Hagen.
- M. LETHIFER, p. 374, 130 = *Myrmeleon lethifer*, Walker.
- M. SECRETUS, p. 375, 131 = *Myrmeleon alternans*, Brullé. The specimen is smaller than examples of *alternans* taken by Wollaston in Madeira, and the markings of the head differ very slightly.
- M. IMPLEXUS, p. 376, 132 = *Myrmecælurus implexus*, Walker.
- M. EXITIALIS, p. 376, 133 = *Myrmeleon exitialis*, Walker.
- M. ACUTUS, p. 377, 134 = *Myrmeleon acutus*, Walker.
- M. TECTUS, p. 378, 135 = *Myrmeleon tectus*, Walker. Doubtfully distinct from *M. immaculatus*, D. G., Hagen.
- M. ASPER, p. 378, 136 = *Myrmeleon asper*, Walker.
- M. INVISUS, p. 379, 137 = *Myrmeleon asper*, Walker.
- M. MALIGNUS, p. 380, 138 = *Myrmeleon malignus*, Walker.
- M. FICTUS, p. 380, 139 = *Myrmeleon malignus*, Walker.
- M. IMMANIS, p. 381, 140 = *Myrmeleon immanis*, Walker.
- M. SÆVUS, p. 381, 141 = *Myrmeleon sævus*, Walker. Closely allied to *M. punctatus*, F., teste exemp. typ. in coll. Banks, but with a differently shaped prothorax.

*M. punctatus* is said to inhabit "India orientalis;" but I know no species thence which will agree with Fabricius's type. It is well known that the localities in the old authors are rather uncertain; and I believe that *M. punctatus* comes from South Africa. I have an example from that quarter, which is specifically identical with the type.

The following is a description of it:—

MYRMELEON PUNCTATUS, *Fab.*

Flavus, nigro vittatus. Antennæ fuscæ, indistincte pallide annulatæ, articulo basali in fronte flavo semicineto; clava subtus ochracea. Caput flavum, inter antennis late nigrum; occipite vitta media punctisque quatuor nigris; fronte macula media piceo-nigra; palpis flavis,

culo ultimo fere toto piceo-nigro, valde acuminato. Prothorax elongatus, antice angustior, flavus, supra nigro trivittatus. Mesothorax flavus; supra vitta media, duabusque lateralibus subinterruptis, nigris. Pectus flavum, utrinque nigro bivittatum. Alæ elongatæ, acutæ, fere æquales; pterostigmate fere quadrato, rufo-ochraceo; venis venulisque nigris, flavo-albido interruptis; punctis numerosis in fureularum axillis nigris. Pedes flavi; femoribus nigro punctatis; tibiis anticis intermediisque nigro fasciatis et punctatis; tarsis brunneo annulatis. Abdomen flavum; vittis quinque, quarum una dorsali, duabus utrinque, nigris. Long. corp. 1" 3''' ; exp. alar. 2" 10'''.

M. SAGAX, p. 382, 142 = *Myrmeleon sagax*, Walker.

M. INFENSUS, p. 383, 143 = *Myrmeleon infensus*, Walker. Perhaps only a var. of *sævus*.

M. DOLOSUS, p. 383, 144 = *Myrmeleon dolosus*, Walker.

M. HOSTILIS, p. 384, 145 = *Myrmeleon hostilis*, Walker.

M. CALLIDUS, p. 384, 146 = *Macronemurus callidus*, Walker.

M. INSOMNIS, p. 385, 147 = *Formicaleo insomnis*, Walker.

M. OCCULTUS, p. 386, 148 = *Gymnocnemis occulta*, Walker.

M. METUENDUS, p. 387, 149 = *Myrmeleon metuendus*, Walker.

M. EFFERUS, p. 387, 150 = *Megistopus efferus*, Walker.

M. EXSANGUIS, p. 387, 151 = *Myrmeleon exsanguis*, Walker.

M. CRUDELIS, p. 388, 152 = *Myrmeleon crudelis*, Walker. Hagen ('Neurop. N. Amer.') queries his *rusticus* as identical with *crudelis*; his description of the former does not agree with Walker's species.

M. MOROSUS, p. 389, 153 = *Myrmeleon morosus*, Walker.

M. ATROX, p. 390, 154 = *Myrmecaelurus atrox*, Walker. Seems to be intermediate between *M. trigrammus* and *M. acerbus*.

M. INERS, p. 390, 155 = *Myrmecaelurus atrox*, Walker. Immature.

M. PRÆDATOR, p. 391, 156 = *Megistopus prædator*, Walker. Closely allied to *M. efferus* and doubtfully distinct.

M. GRATUS, p. 392, 157 = *Glenurus gratus*, Say.

M. PULCHELLUS, p. 392, 158 = *Glenurus pulchellus*, Rambur.

M. FALSUS, p. 393, 159 = *Glenurus falsus*, Walker.

M. MALUS, p. 393, 160 = *Gymnocnemis mala*, Walker.

M. ERYTHROCEPHALUS, p. 394, 161 = *Glenurus?* *erythrocephalus*, Leach. This species comes very unsatisfactorily in *Glenurus*, which, in itself, contains several generic forms.



M. SUBDOLUS, p. 395, 164 = *Dimares subdolos*, Walker. Hagen ('Stett. ent. Zeit.' 1860) queries this as distinct from *elegans* of Perty; but I believe the two species are thoroughly good. *M. conicollis* of Walker ('Trans. Ent. Soc. Lond.' ser. 2. vol. v. p. 188) is certainly *D. elegans*: this latter species is very liable to vary; for many specimens are entirely without the markings on the wings, and in these the normal dark reticulation is interrupted by pale spaces.

M. COMPOSITUS, p. 397, 166 = *Tomateres pardalis*, F. Teste exemp. typ. in collect. Banks.

M. ASTUTUS, 398, 167 = *Tomateres astutus*, Walker.

M. TRANSLATUS, p. 398, 168 = *Pamexis conspurcatus*, Burm.

M. SINGULARIS, p. 399, 170 = *Glenurus singularis*, Westw.

M. CIRCUITER, p. 400, 171 = *Glenurus circuiter*, Walker.

#### EXPLANATION OF PLATE VIII.

Fig. 1. *Corydalis Batesii*, ♀.

2. *Corydalis crassicornis*, ♂; 2 a, portion of antenna; 2 b, anal appendices (side view); 2 c, ditto (from above).

3. *Corydalis inamabilis*, ♂; 3 a, portion of antenna; 3 b, anal appendices (side view); 3 c, ditto (from above).

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#### ERRATA.

Page 237, line 12 from top, for "apex" read "radius."

Page 253, line 13 from top, *dele* "dimidio et ultra."

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On the Prevalence of Entozoa in the Dog, with Remarks on their Relation to Public Health. By T. S. COBBOLD, M.D., F.R.S., F.L.S., Lecturer on Zoology, &c.

[Read April 18, 1867.]

DESPITE the rapid advances of heminthological science, it is not yet sufficiently well understood how intimately connected are the relations subsisting between man and the domestic animals in reference to entozootic diseases. Whilst our very existence is dependent upon a supply of certain animals, as sources of food and aids to civilization, it can nevertheless be shown that under certain circumstances any one of the most valued of our domestic quadrupeds may become an occasion of discomfort, disease, or even death. The truth of this general statement is sufficiently

